# MODE OF SEISMIC MOMENT RELEASE AT THE PACIFIC-ANTARCTIC RIDGE

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***Abstract:*** This paper presents an analysis of transform fault (TF) events along the Eltanin fracture zone (FZ) and the Udintsev FZ, the Pacific-Antarctic Ridge. We redetermined fault plane solutions and seismic moments of 12 TF events by moment tensor inversion (FITCH *et al.*: J. Geophys. Res., **85**, 3817, 1980) using Claerbout's Robust modelling (CLAERBOUT and MUIR: Geophysics, **38**, 826, 1973). Corrections for physical dispersion and instrumental response were made by a simple method same as that of CHUNG and KANAMORI (Phys. Earth Planet. Inter., **23**, 134, 1980).

Conclusions are as follows:

(1) Events for which fault plane solutions were well-constrained were all left-lateral strike-slip fault events, which is consistent with the concept of the transform fault.

(2) Total amount of the seismic moments released at the Eltanin FZ, the Pacific-Antarctic Ridge, is $6\text{–}7\times10^{26}$ dyn·cm, including all of the TF events of the surface wave magnitude Ms greater than 5.8. The estimate is 8–10% of an amount of $7.5\times10^{26}$ dyn·cm predicted by a simple plate kinematics with parameters of a TF length of 1300 km, a crustal thickness of 10 km, a rigidity of $4\times10^{11}$ dyn·cm, a spreading rate of 9 cm/yr and the period of 16 years. This indicates that the main part of transform fault movements was released aseismically at the Eltanin FZ.

The conclusion (2) seems to be a proof for the conclusion that the fast-spreading center like the Pacific-Antarctic Ridge is hot and plastic because hot mantle materials are being supplied by the fast-moving mantle-convection current.

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